



Federal Aviation Administration

Video and Multimedia Products

Video and Multimedia Presentation Menu

- [Objectives, agenda and general information](#)
- [1194 \(a\) related to TV and broadcast equipment, and computer equipment and closed captions](#)
- [1194 \(b\) related to TV tuners and tuner cards and secondary audio program](#)
- [More about video equipment](#)
- [1194 \(c\) related to closed caption requirements](#)
- [1194 \(d\) related to audio description requirements](#)
- [More about captioning and audio descriptions](#)
- [1194 \(e\) related to controls for displaying captions and enabling audio descriptions](#)
- [Computer and online multimedia](#)
- [Tools and resources](#)

Training Objectives

- Understand the 1194.24 Video and Multimedia products technical standards
- Know Captioning tools and examples
- Know Audio Description tools and examples
- Become familiar with Video and Multimedia products resources available

Training Agenda

- Part 1: Access Board 1194.24 Video and Multimedia Technical Standards
 - Important definitions, concepts and exclusions
 - Hardware Requirements
 - Captioning Requirements
 - **Captioning Techniques and Examples**
 - **Audio Description Requirements**
 - **Audio Description Techniques and Examples**
 - Computer and online multimedia techniques
- Part 2: Video and Multimedia Products, Tools and Resources

Important Definitions

- Multimedia
 - Presents information in more than one sensory mode, e.g., audible and visual
 - Includes all formats (TV, DVD, web-based)
- Production
 - Video or multi-media purchased or developed for repeated showings or broadcast
- Supports Agency Mission
 - Applies to training and informational, but not staff celebrations, for example.

Important Concepts

- Standard applies only to productions that support the agency's mission
 - Training and informational productions regardless of format
 - Multimedia included in PowerPoint slides, web pages, CD's and DVD's
- Standard does not replace obligation to provide reasonable accommodation
 - Captioning, descriptions and/or interpreter services may *still* be required whether or not the standard applies.

Important Exclusions

- Raw videotaped footage not intended for broadcast (not a production)
- Live classroom trainings, presentations and meetings (except included multimedia files)
- Productions where no technology exists at the time to include captions and/or audio descriptions
- Existing Productions and those pre-dating the standard
- Audio and/or video is not necessary to understand content

1194.24 Technical Provision (a)

Analog and digital TV displays and computer equipment that includes TV or DTV receiver or display circuitry, shall be equipped with caption decoder circuitry to receive, decode and display closed captions. Computer, TV, DVD and DTV receivers and/or tuners, whether or not they include display screens, shall be equipped with caption decoder circuitry.

What Equipment is Included?

- Analog and DTV TVs and displays 13 inches or larger
- Digital widescreen TVs and displays 7.8" vertically or larger
- Computer equipment with analog or digital TV receiver or display circuitry
 - DTV, DVD and VHS players or cards
- Standalone equipment including VHS, DVD and DTV tuners

What Is Required?

- The equipment must include circuitry able to appropriately receive, decode and display closed captions from broadcast, cable, videotape and DVD signals

What does this provide?

- Equipment with a TV Tuner will be capable of decoding and displaying closed captions.

Note: Almost all TVs made in the last ten years meet this Section 508 requirement.

1194.24 Technical Provision (b)

Television tuners, including tuner cards for use in computers, shall be equipped with secondary audio program playback circuitry

What Equipment is Included?

- Analog and digital TVs with tuners
- Computer equipment with analog or digital TV tuners
 - DTV, DVD and VHS cards with tuners
- Standalone equipment including VHS, cable and satellite boxes, DVD and DTV tuners

What is Required?

- Equipment must include secondary audio program (SAP) playback circuitry

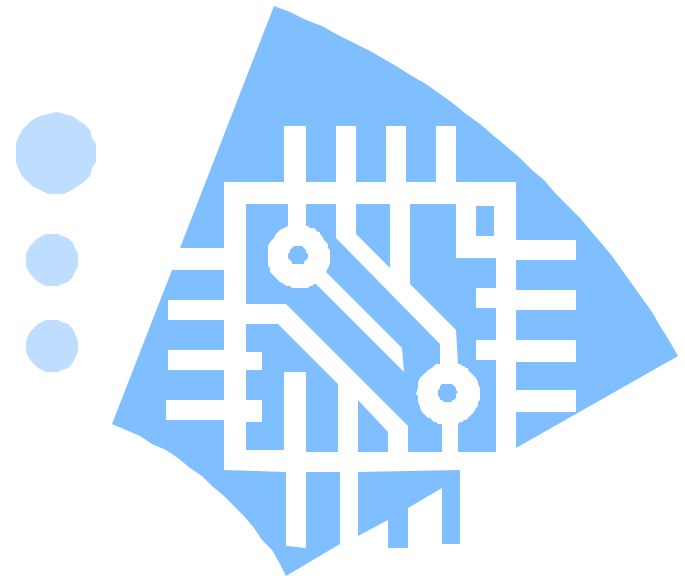
What does this Provide?

- Permits equipment to play optional audio descriptions with the audio track

Find Out More About Accessibility and Video Equipment



Select to find
out more

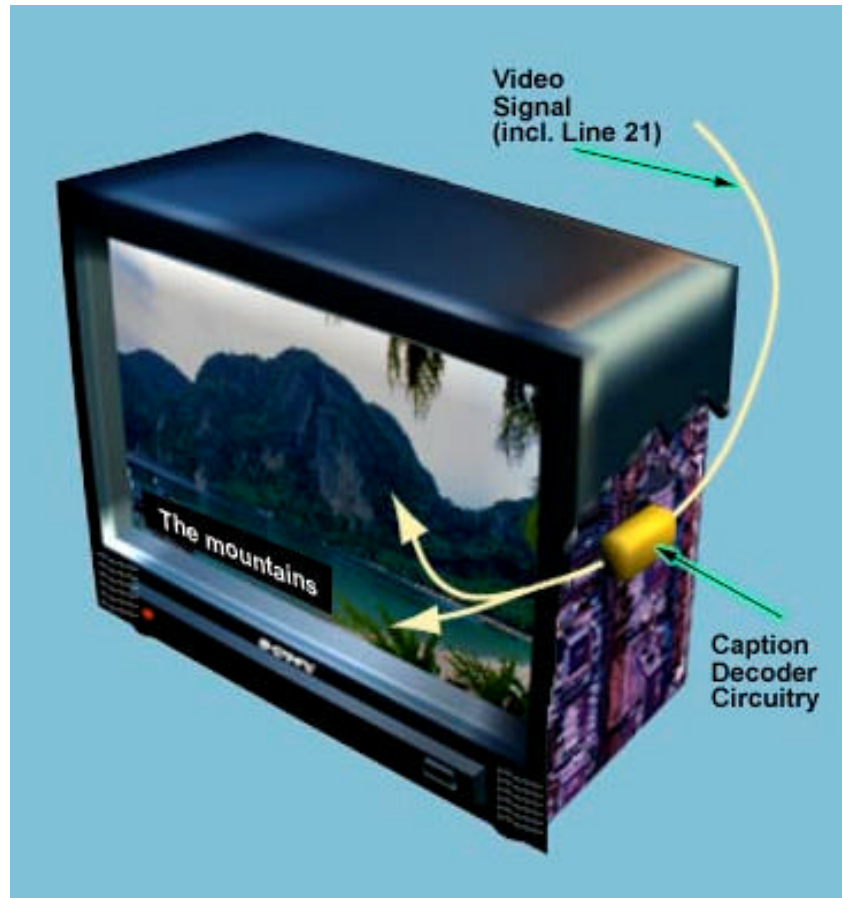


Select to jump
to 1194 (c)

More About Video Equipment

Any analog TV Larger than 13 inches requires a “caption decoder circuitry” to show a program’s closed captioning.

Televisions manufactured since 1993 already have that circuitry built-in to conform to the regulations set forth in the Television Decoder Circuitry Act of 1993.



More About Video Equipment

What is a tuner card?

- Tuner cards enable a computer to receive television broadcasts.
- Method to merge TV, PC, cable and internet capabilities in one unit.
- Can be internal or external, works with laptop or desktop.



More About Video Equipment

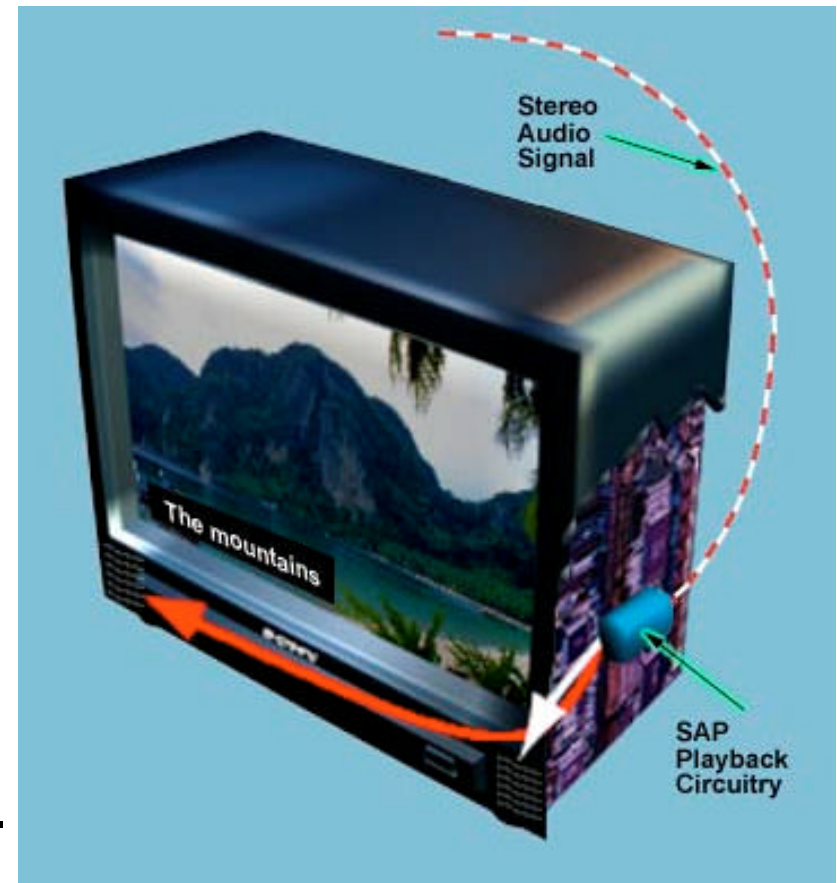
Why does this apply to computer equipment?

- Because personal computers can be used to play multimedia on DVDs and digital forms of video content such as DTV and analog video fed into a PC TV card, the ability to display the closed captions included in the original format is necessary, or the information will not be accessible.

More About Video Equipment

Most new TV's and computer tuner cards include a features called "Multi-channel Television Sound" (MTS).

The standard television broadcast contains three audio channel: the right stereo, left stereo, and secondary audio program (SAP). MTS includes the secondary audio program (SAP) playback circuitry so it can receive and display all three.



More About Video Equipment

Where are the captions in a TV channel? How can they be turned on and off?

- A TV channel includes a number of different tracks, some visible and others not. Caption information (which is not video information) is included on line 21, part of the black bar you see when vertical hold is not correctly adjusted.
- A closed caption decoder interprets the information on line 21 into text and displays the text as an overlay on the video image. The decoder can be turned on or off. The standard for this feature is called NTSC which specifies the content and format for analog television channel information.

Menu Options

This ends the optional additional information about TV equipment.

[Next page to continue to section \(c\)
concerning closed caption requirements](#)

[Home to return to the beginning](#)

1194.24 Technical Provisions (c)

All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.*

* See Section 508 Standard for complete language

What is Included?

- Must be multimedia, meaning information in more than one sensory mode, e.g., audible and visual
- Must be a production, meaning it is intended for repeated showings or broadcast
- Must contain speech or other audio
- Audio is necessary for understanding
- Supports agency mission

What Does Format Mean?

- The type of video or multimedia file or content such as:
 - VHS tape Java-based multimedia
 - DVD Animation
 - Web-based movies including Flash, Quicktime, Real Player and Windows Media Player
 - Broadcast formats including TV, DTV, cable and satellite

What is Required?

- Open or closed captions for speech and for other audio necessary for understanding.
- Captioning is provided in a manner appropriate for the format

What about Subtitles?

- Subtitles only include speech and are not sufficient in all cases

What is Captioning?

- On-screen display of text for spoken dialogue and other meaningful sounds
- Text is synchronized with the audio
- Methods depend on format
- Television captioning standards defined by the Federal Communications Commission

Types of Television Captions

Open Captions

Displayed automatically
as integral
part of the video

Closed Captions

Viewer selects captions to
appear

Requires closed caption
decoder

Viewer can toggle captions
on and off



TV Caption Formats

- Pre-recorded video
 - Timed Roll-Up Captions
 - Pop-Up Captions
- Live Video
 - Stenographer and stenographic keyboard
 - Voice Recognition
 - Teleprompter text streaming



When Are Captions Useful?

- Audio track cannot be heard, or heard clearly (e.g, noisy environment)
- The audio track has poor sound quality
- Captions (closed or independent of the video)
 - Provide a searchable text index
 - Provide text that can be translated

What Do Captions Include?

Besides speech, include this information

- The speaker's identity
- Change in speaker (with >>)
- Information obscured by the captions
- Meaningful audio such as applause

Example of captioned multimedia

[PBS Geometry Lesson](#)

[Get media player](#)

Requires Windows Media Player

1194.24 Technical Provision (d)

- All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described.

What is Included?

- Must be multimedia, meaning information in more than one sensory mode, e.g., audible and visual
- Must be a production, meaning it is intended for repeated showings or broadcast
- Must contain visual information necessary for understanding
- Supports agency mission

What is Audio Description?

- Also called descriptive video or video descriptions
- A description of visual information necessary for understanding content or context
- Inserted in moments where no meaningful audio is occurring
- Example of audio described multimedia

What is Required?

Audible description of the visual content of a production, synchronized with the existing soundtrack

- For TV and broadcast formats, the primary audio and optional audio description are recorded on the secondary audio program track.
- Many formats require two versions – one with and one without audio descriptions

What Do Audio Descriptions Include?

- Setting and scene changes
- Actions and graphics
- Gestures and body language
- Speaker identification
- Important video statements
 - Phone numbers, web and street addresses, etc.

Use best judgment, audio descriptions are subjective by nature.

Find Out More About TV Captioning and Audio Descriptions



[Select to find out more](#)



[Select to jump to 1194 \(e\)](#)

Captioning Live and Pre-Recorded Video

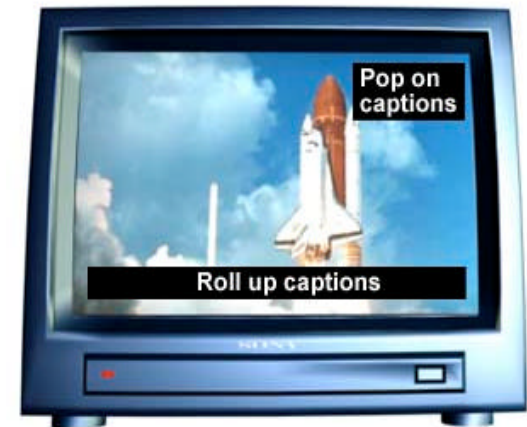
Captioning Live Video

- Stenocaptioner
- Stenographic Keyboard



Captioning Pre-Recorded Video

- Timed Roll-Up Captions
- Pop-Up Captions



In-House Captioning

- **In-House Video Production**
- Captioning standard videos
- in-house requires more specialized equipment for
- each stage of the captioning process.
- **Editing Video Captions**
- **Encoding Video Captions**



Adding Audio Descriptions

Audio Description – Audible description of the visual content of a presentation, synchronized with the existing soundtrack

Live and Recorded Media

- audio description Service
 - Trained Audio Descriptor
- Assistive Listening Devices
- Example of video description



More About TV Captioning and Audio Descriptions

Joe Clark Understanding Media Access Terminology

– <http://www.joeclark.org/understanding.html>

- Resource for captioning guidelines

www.captioning.org

- Resource for Captioning Services

<http://www.captions.org/services.cfm>

Captioning for Different Media Players

- Captioning and RealOne Player
 - <http://service.real.com/help/library/guides/realone/ProductionGuide/HTML/realpgd.htm>
- Captioning and Windows Media Player
 - <http://www.webaim.org/techniques/captions/windows/1>
- Captioning and Quick Time Player
 - <http://www.webaim.org/techniques/captions/quicktime/>

Resources for Audio Descriptions

- Creating Audio Descriptions for Rich Media
 - [NCAM Rich Media Accessibility](#)
 - [Issues Solutions and Benefits](#)

Resource for information on audio description guidelines

<http://www.itc.org.uk/>

[ITC Audio Description Guidelines](#)

1194.24 Technical Provision (e)

- Display or presentation of alternate text presentation or audio descriptions shall be user-selectable unless permanent

What is Included?

Applies To:

- Controls for selection, display or presentation of:
 - Captions
 - Audio Descriptions
- Affects DVD and CD-ROM productions
- Affects computer-based multimedia

What is Required?

- Shall be User Selectable unless Permanent
 - Applies to closed-captioning (Viewer can choose to turn captioning on or off)
 - Audio description if permanently encoded (Viewer cannot choose to turn on or off – always on) must provide two versions of production
- Where closed captions and audio descriptions can be controlled, the menus or controls must be audible or readily selectable (see 1194.31)
- Means for selecting alternate audio channels including audio descriptions must be available in an audio format

Some Examples

- DVD menus have no standards for activating audio description – every production can be different.
- Quicktime version 6.2
 - native player controls for captions are not accessible. However, the controls can be included if the player is embedded on a web page.
 - Free version of Quicktime player pop up screens cannot be controlled or closed with the keyboard

Computer and Online Multimedia (Rich Media) Techniques

- In addition to 1194.24 requirements, 1194.22 applies to web-based information and applications:
 - *(b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation*
- The software used to create and display multimedia must comply with 1194.21
Software Applications and Operating Systems

Why is Computer-based Multimedia Different?

- TV and broadcast formats have significant restrictions due to technology, other regulations, and legacy equipment and techniques
- Computer-based formats (CD, web-based, and application specific formats such as Flash and Quick Time) have few constraints on how captions and audio descriptions are added, controlled and displayed.

Computer and Online Multimedia (Rich Media) Techniques

- Caption and audio description solutions may be different depending on the computer, the content and the “player” used.
- Different formats for adding caption text:
 - W3C standard is SMIL (Synchronized Multimedia Integration Language). Used by Real Player
 - Microsoft Standard is SAMI (Synchronized Accessible Media Interchange (SAMI)). Used by Windows Media Player and requires Internet Explorer
 - Apple Quicktime is a proprietary format. Used by Quicktime player
 - Macromedia Flash solutions depend on the content, Flash version and are proprietary formats also

Types of Computer Captions

- Open Captions
 - Use where the type of equipment or the media player cannot be specified
 - May be small and difficult to read
 - Cannot be separated from the video
- Closed Captions
 - Technique is specific to a particular player media format, may require multiple versions
 - Can control format of the caption text
 - Can edit caption text post production
 - Can translate text to different languages

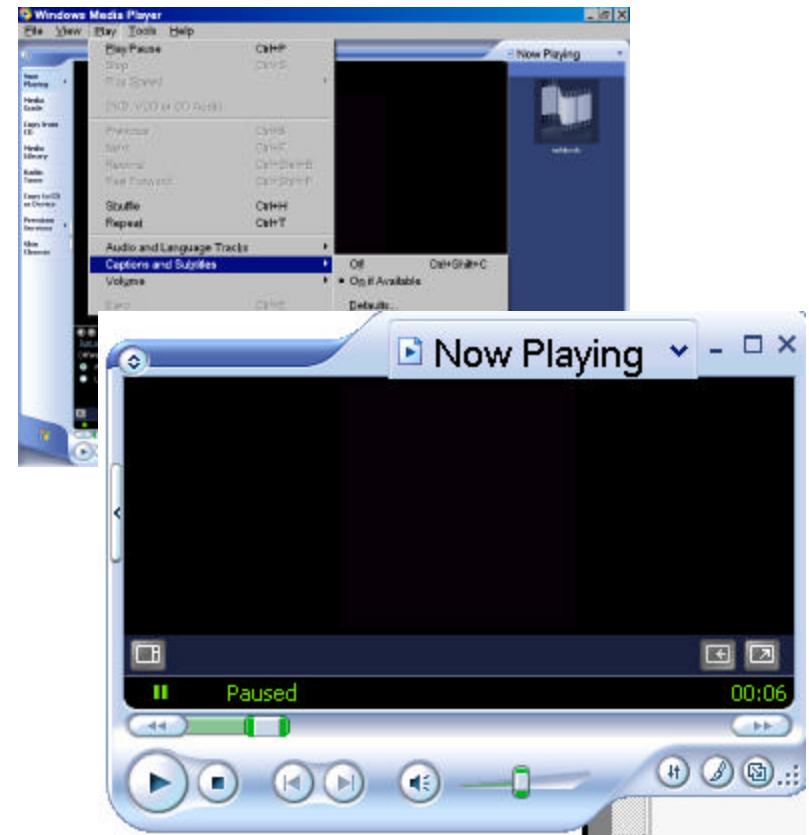
Rich Media Player Formats

- Real Player
- Apple Quick Time
- Windows Media Player
- Flash

Accessibility features are different with each player

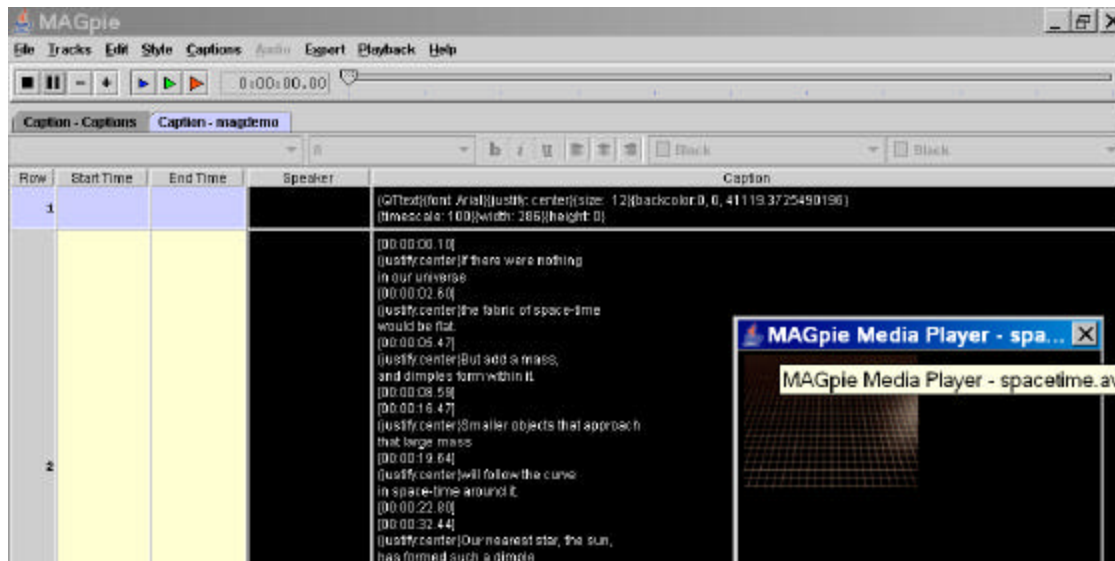
- Use accessibility features when available
- Show captions

Activating Captions in Windows Media Player



Rich Media Accessibility Tool

- Media Access Generator (MAGpie)
 - Free tool for adding and synchronizing captions to audio and video content, and for adding audio descriptions
 - Can be used to export captions to:
 - Synchronized multimedia integration language (SMIL)
 - Apple Quick Time
 - Synchronized Accessible Media Interchange (SAMI)



Examples

- Examples of [Quick Time and Real Video](#) embedded in a web page, with caption controls
- Other Examples from [NCAM](#)
- [Example of Flash with Captions](#)
 - Note: This flash page does not meet other requirements of Section 508. Be sure to turn captions on.

Frequently Asked Questions

Do I need captioning and audio descriptions if my target audience does not need captioning?

Yes, the standards clearly state that all video and multimedia produced or procured after the effective date shall be captioned and audio described.

Do I need to retrofit my existing videos?

No, however, you must provide reasonable accommodation upon request.

I am making training videos under an existing contract. Do I need to provide captioning?

You need to contact the Section 508 Procurement Legal point of contact (POC) to answer this question.

If I am doing Netmeeting (WebEx, etc) do I need to provide captioning or alternative formats? What about PowerPoint presentations?

Live meetings and presentations do not require captions and audio descriptions except for multimedia included in slides or videos used during the meeting. However, reasonable accommodation is required for *any* participant. In many cases, online meetings and presentations will be most economically accommodated through captioning.

Part 2: Video and Multimedia Products, Tools and Resources

- Computer or online multimedia techniques
 - Adding closed captions using MAGpie and Flash
 - Adding audio descriptions using MAGpie
- Rich Media resources
- Broadcast media resources
- Related Legislation and Regulations

Creating Captions for Rich Media

- Using MAGpie (Media Access Generator)
 - Web tool for adding and synchronizing captions to audio and video content
 - Can be used to export captions to:
 - Synchronized Multimedia Integration Language (W3C format)
 - Apple Quick Time
 - Synchronized Accessible Media Interchange (SAMI) (Microsoft format)

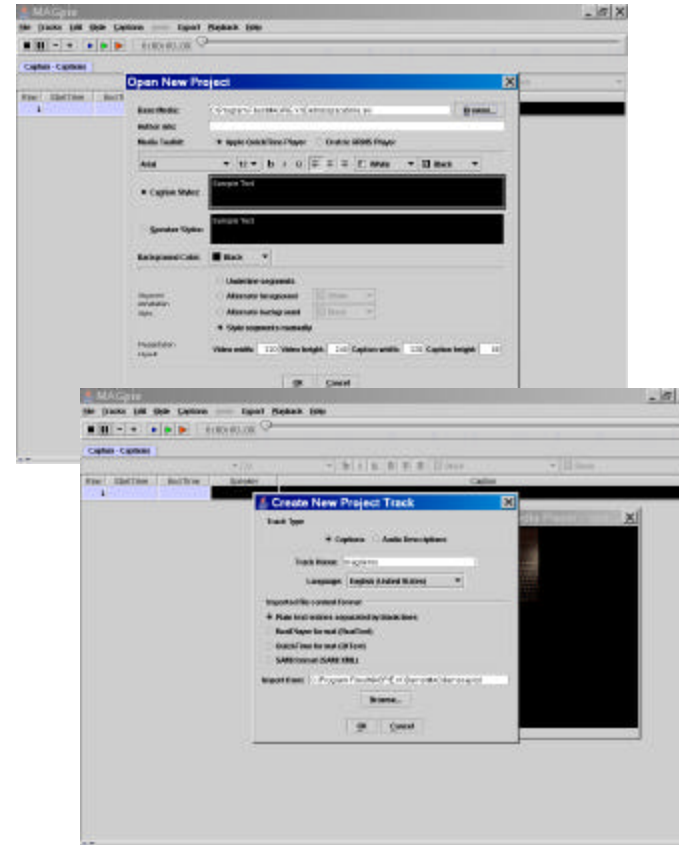
Using MAGpie for Captions

Open MAGpie and create a new project

Import a new project track

- Can import captions in several formats
- Can create delimited text file from a transcript

Synchronize caption lines to video by adding time codes while playing



Using Magpie for Audio Descriptions

MAGpie 2 Documentation | Audio Description Authoring - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address Go Links »

Google Search Web Search Site Options

- Media Start: "Media" refers to the media being described. Once descriptions are timed, cells in this column contain times that the descriptions are played. Audio description authors can modify the values in this column manually, but should be careful to ensure that the times entered are sequential.
- Media End: If an end time is needed for an audio description, this column will be used. This is an uncommon occurrence.
- Audio Resource: The file name for the audio description sound file.
- Audio Start: "Audio" refers to the file containing the audio description. When using an audio resource that is longer than needed for a specific audio description, it may be necessary to set the start time within the audio resource. This is equivalent to the clipBegin (clip-begin) attribute value in SMIL.
- Audio End: The end time within the audio description file that is longer than is needed for the current audio description.
- Audio transcription: Type the audio description transcript in this column if desired. MAGpie *does not* include any text-to-speech capabilities, but this text is useful as a script when recording descriptions in MAGpie and also can be used to create a collated text transcript along with caption text in another track.

File Tracks Edit Style Captions Audio Export Playback Help

0:00:00.00

Caption - Captions Audio - AudioDescriptions

Row	Media Start	Media End	Audio Resource	Audio ...	Audio ...	Audio Transcription
1	0:00:0...		sphere.wav			An animation of a large sphere falling into a grid representing space-time. The sphere creates a dimple in the grid, from which circular waves emanate.
2	0:00:2...		transfrm.wav			Following the rim of the dimple, a smaller sphere begins orbiting the larger sphere. The large sphere transforms into the sun, as the small sphere becomes the planet Earth.

Record Description...

sphere.wav

Done My Computer

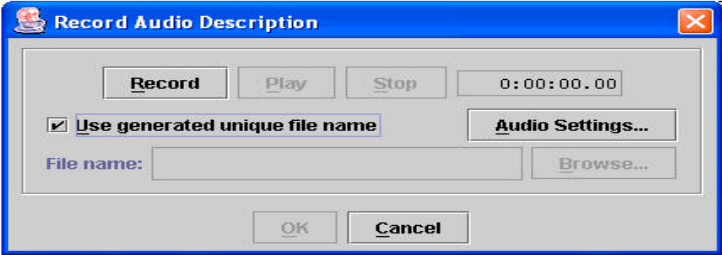
Importing Audio Tracks

MAGpie 2 Documentation | Audio Description Authoring - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Record or Import Audio Descriptions

1. Press the **Record Description** button at the bottom of the editor, or open the **Audio** menu and choose **Record Audio Description**. Plug a microphone into your computer or, if you have one, use the computer's built-in microphone. In the dialog box, press the **Record** button (or press Alt+R) and read the description script. Press the **Stop** button (or Alt+S) when finished. You can listen to the audio file by pressing the **Play** button (or Alt+P). Re-record the audio as necessary. The **Record Audio Description** dialog box displays the length of the recorded audio file to facilitate comparison with the maximum duration of the audio description.



*Note: If you want to import a pre-recorded audio file instead of recording one in MAGpie, choose **Select audio file** from the **Audio** menu, select the file, and press **OK**.*

2. Type a file name into the edit field in the recording dialog box, then press the **OK** button. MAGpie will insert the file name into the audio resource column of the editor. (If you are importing pre-recorded files, MAGpie will insert the file name automatically into the edit field.)

Time the Audio Descriptions

1. Place the cursor in the row of the editor corresponding to the description you wish to time. Press **F9** to assign a media start time (the time at which you want the audio description to play) to the audio file. Note that the cursor will jump to the next row after MAGpie records the timecode. Press **F9** again to assign a start time to the next audio file. Continue this process until all the audio files have start times assigned to them. If you make a mistake, stop the media, rewind and re-time the files as necessary. You may also change timecodes manually.
2. To create a new audio-description cell, place the cursor at the end of the text in the last Audio Transcription cell and press the **Return** key once. Transcribe, record and time each new description as described above.

Done My Computer

Resources for Rich Media

- National Center for Accessible Media ([NCAM](#))
 - [MAGpie free captioning tool](#)
 - [SMIL, SAMI and Quick Time Tutorials](#)
 - [Captioning guidelines](#)
- Macromedia
 - [Techniques for adding captions to Flash](#)
 - [Tool for creating Flash captions with MAGpie](#)
 - [Flash Accessibility Features](#)

Resources for Broadcast Media

- www.captioning.org
- Real-time Webcasting Captioning Vendors
 - Speche Communications
 - www.rapidtext.com
 - www.rtreporters.com
- Resource for audio description
 - CAST's Image Lab
 - ITC Guidance on Standards for Audio Description

http://www.itc.org.uk/uploads/ITC_Guidance_on_Standard_for_Audio_Description.doc

Links to Media Players

- [Windows Media Player](#)
- [Real One Player](#)
- [Quick Time Player](#)
- [Flash Player](#)

Related Legislation and Regulations

- Television Decoder Circuitry Act of 1990
- Telecommunications Act of 1996
- FCC Section 255
 - Sign up for listserv: